DELHI PUBLIC SCHOOL (JOKA) SOUTH KOLKATA
SESSION: 2020 -2021
CLASS – XII
COMPUTER SCIENCE

PERIODIC TEST-I	**Unit1:Computational Thinking and Programming - II** • Revision of the basics of Python covered in Class XI. • Functions: scope, parameter passing, mutable/immutable properties of data objects, passing strings, lists, tuples, dictionaries to functions, default parameters, positional parameters, return values, functions using libraries: mathematical and string functions. • File handling: Need for a data file, Types of file: Text files, Binary files and CSV (Comma separated values) files. • Text File: Basic operations on a text file: Open (filename – absolute or relative path, mode), Close a text file, Reading and Manipulation of data from a text file, Appending data into a text file, standard input / output and error streams, relative and absolute paths. • Binary File: Basic operations on a binary file: Open (filename – absolute or relative path, mode), Close a binary file, Pickle Module – methods load and dump; Read, Write/Create, Search, Append and Update operations in a binary file. • CSV File: Import csv module, functions – Open, Close a csv file, Read from a csv file and Write into a csv file using csv.reader ( ) and csv.writerow( ). • Using Python libraries: Import Python libraries. • Data-structures: Lists as covered in Class XI, Stacks – Push, Pop using a list. **DEDUCTED PORTION** (*as per CBSE instructions*): • Recursion – simple algorithms with recursion : print a message forever, sum of first n natural numbers, factorial, Fibonacci numbers, recursion on arrays : binary search • Idea of efficiency: performance measurement in terms of the number of operations. • Data-structures: Lists as covered in Class XI, Stacks – Push, Pop using a list, Queues – Insert, Delete using a list. (One of the data structure Stack or Queue. Note: students will have an option between Stack and Queue.)
MIDTERM EXAMINATION	**Theory:** • **Unit 1: Computational Thinking and Programming–II (Revision)** • **Unit 3: Database Management** **Database Concepts:** Introduction to database concepts and its need. Relational data model: Concept of domain, relation, tuple, attribute, degree, cardinality, key, primary key, candidate key, alternate key and foreign key; **Structured Query Language:** General Concepts: Advantages of using SQL, Data Definition Language and Data Manipulation Language; Data Types: number / decimal, character / varchar / varchar2, date; **SQL commands:** SELECT, DISTINCT, FROM, WHERE, IN, BETWEEN, LIKE, NULL / IS NULL, ORDER BY,GROUP BY, HAVING; **SQL functions:** SUM ( ), AVG ( ), COUNT ( ), MAX ( ) and MIN ( ); **Joins:**equi-join and natural join

MIDTERM EXAMINATION

Interface of Python with an SQL database :
Connecting SQL with Python - Creating Database connectivity Applications performing Insert, Update, Delete queries - Display data by using fetchone(),fetchall(),rowcount.

DEDUCTED PORTION (*as per CBSE instructions*):
CREATE TABLE, DROP TABLE, ALTER TABLE, UPDATE ....SET, INSERT, DELETE (**from Unit 3 : DBMS**)

Practical:

S.No.	Unit Name	Marks
1	**Lab Test:** 1. Python program (60% logic + 20% documentation + 20% code quality) 2. Small Python program that sends a SQL query to a database and displays the result. A stub program can be provided.	08 07
2	**Report file:** Minimum 20 Python programs. Out of this at least 4 programs should send SQL commands to a database and retrieve the result SQL Queries	10
3	**Viva-Voce**	05
	TOTAL	**30**

PERIODIC TEST-II

Unit2:Introduction to Computer Networks

- Evolution of Networking: ARPANET, Internet, Interspace Different ways of sending data across the network with reference to switching techniques (Circuit and Packet switching).
- Data Communication terminologies: Concept of Channel, Bandwidth (Hz, KHz, MHz) and Data transfer rate (bps, Kbps, Mbps, Gbps, Tbps).
- Transmission media: Twisted pair cable, coaxial cable, optical fiber, infrared, radio link, microwave link and satellite link.
- Network devices: Modem, RJ45 connector, Ethernet Card, Router, Switch, Gateway, WiFi card.
- Network Topologies and types: Bus, Star, Tree, PAN, LAN, WAN, MAN.
- Network Protocol: TCP/IP, File Transfer Protocol (FTP), PPP, HTTP, SMTP, POP3, Remote Login (Telnet) and Internet, Wireless / Mobile Communication protocol such as GSM, GPRS and WLL.
- Mobile Telecommunication Technologies: 1G, 2G, 3G, 4G and 5G; Mobile processors; Electronic mail protocols such as SMTP, POP3, Protocols for Chat and Video Conferencing: VoIP, Wireless technologies such as Wi-Fi and WiMax
- Network Security Concepts: Threats and prevention from Viruses, Worms, Trojan horse, Spams Use of Cookies, Protection using Firewall, https; India IT Act, Cyber Law, Cyber Crimes, IPR issues, hacking.
- Introduction To Web services: WWW, Hyper Text Markup Language (HTML), Extensible Markup Language (XML); Hyper Text Transfer Protocol (HTTP); Domain Names; URL; Website, Web browser, Web 8 Servers; Web Hosting.

DEDUCTED PORTION (*as per CBSE instructions*):
● Web Scripting Client side (VB Script, Java Script, PHP) and Server side (ASP, JSP, PHP), Web 2.0 (for social networking) ● E-commerce payment transactions using online banking, mobile banking, payment apps and services.

**** IN CBSE CLASS - XII EXAMINATION THE ENTIRE YEAR'S SYLLABUS WILL BE ASSESSED.**